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| 10/811,604 | 03/29/2004 | Pieratilio Di Gregorio | 6023-175US (BX2592M) | 2819 |

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AKIN GUMP STRAUSS HAUSER & FELD L.L.P.
ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103-7013

EXAMINER

BECK, DAVID THOMAS

| | |
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| ART UNIT | PAPER NUMBER |
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1732

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/811,604 | Applicant(s) GREGORIO, PIERATTILIO DI | |
| | Examiner David T. Beck | Art Unit 1732 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This office action is in response to the Amendment filed on 11/18/04.

Claim Rejections - 35 USC § 112

1. The rejection of claim 7 for lack of antecedent basis has been overcome.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (5,107,649) in view of the teaching of Yamashita et al (6,339,946).

With regard to claim 1, Benson discloses a known procedure for producing a planar vacuum panel, (column 4, line 40-52) having an envelope comprising at least one multilayer sheet (column 8, lines 50-54) and containing at least one filler selected from the group consisting of inorganic powders and porous organic foams (column 16, lines 25-29). Benson further discloses that the panel can be curved into a cylinder, (column 9, lines 22-26 and Figure 18). Benson does not disclose the method by which the panel is curved, but does disclose that the panel may comprise metal sheets, (see column 4, line 8-17) and that the sheets may be bent (column 6, lines 48-54). Attention is drawn to Yamashita, which discloses a method for curving metal sheets (see column 3, lines 1-7) through calendering by using two rollers and a third element (a roller) of equal length placed parallel to the two rollers, (see Figures 7A and 7B).

It is noted that the applicant has admitted that the "...operation of calendaring is well known and applied in the mechanical field for curving metallic plates..." (see Applicant's specification, page 3, line 16). It is also noted that the planar vacuum panel disclosed by Benson is comprised primarily of metal sheets, (see column 4, line 8-17) and that Benson teaches that these sheets are curved by some process, (see column 9, lines 22-26 and Figure 18). Sheets are equivalent to plates. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have produced the curve in the curved panel described by Benson by using a calendaring process carried out by passing the planar vacuum panel between at least two rollers and a third element (roller) of length equal to that of the rollers and placed parallel to the two rollers as described in Yamashita.

With regard to claim 2, Yamashita teaches the calendaring operation is carried out by passing the planar vacuum panel between at least two rollers and a third element of length equal at least to a length of the two rollers and having a position parallel to the two rollers (Figure 3, number 30, and figures 7A and 7B).

With regard to claim 3, Yamashita teaches the third element is a third roller (Figure 3, number 30, and figures 7A and 7B).

With regard to claim 7, Yamashita also discloses a method for curving metal panels through calendaring by using two rollers and a third element of equal length placed parallel to the two rollers where the position of the third element (a roller) is continuously modified during the calendaring operation, (see column 6, lines 21-28 and Figures 7A and 7B).

With regard to claim 12, Benson teaches that the vacuum panel contains at least one getter material (column 4, lines 51-52).

With regard to claim 14, Benson teaches the planar vacuum panel is thermo-insulating (abstract).

4. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (5,107,649) in view of the teaching of Yamashita et al (6,339,946) and Nishimoto (6,336,693).

With regard to claims 4 and 5, the teachings of Benson in view of Yamashita are as indicated in the rejection above. However, Benson in view of Yamashita does not expressly teach the particular dimensions. Nevertheless, it would have been further prima facie obvious to subject a vacuum panel that is comprised of, as filling material, rigid polyurethane foam, with a thickness lower than 20 mm (as in claim 4) or between 8 and 15 mm (as in claim 5) to the calendaring process in view of Nishimoto which discloses that it is known to construct vacuum panels using hard polyurethane foam having a thickness in a range of 10 to 20 mm (see column 3, lines 47-58). Moreover, in the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists. *In re Werthiem*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (5,107,649) in view of the teaching of Yamashita et al (6,339,946), Boes et al (6,132,837), and Richard J. Lewis, SR., *Hawley's Condensed Chemical Dictionary*, 1993, Van Nostrand Reinhold, 12th Edition, Page 960.

With regard to claim 6, the teachings of Benson in view of Yamashita are as indicated in the rejection above. However, Benson in view of Yamashita does not expressly teach the particular dimensions. Nevertheless, it would have been further prima facie obvious to subject a vacuum panel that is comprised of, as filling material, silica powder, with a thickness between 5 and 20 mm (as in claim 6) to the calendaring process in view of Boes which discloses that it is known to construct vacuum panels using precipitated silica having a thickness in a range of 1 to 100 mm (see column 6, lines 7-8 and 20-21). Precipitated silica is, by definition, powdered silica as "powder" is defined as "Any solid, dry material of extremely small particle size...prepared...by...precipitation via chemical reaction." (see Hawley's Condensed Chemical Dictionary, page 960). Moreover, in the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists. *In re Werthiem*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (5,107,649) in view of the teaching of Yamashita et al (6,339,946), Roos (4,918,112), and Haase (4,011,357).

With regard to claim 8, the teachings of Benson in view of Yamashita are as indicated in the rejections above in that they show a prima facie case of obviousness for the method of claim 1 upon which claim 8 depends. Furthermore, Benson also teaches that spacer beads coated with a polystyrene or similar adhesive material are to be affixed to the wall sheets of the planar vacuum panel, (column 7, lines 9-14), thus

necessarily creating at least a layer of polymeric adhesive on at least one surface of the panel. Benson teaches that the panel is subsequently bent, (column 7, lines 2-8). As stated above, it is prima facie obvious from the teachings of Benson in view of Yamashita that the panel would be bent through a calendaring operation.

However, Benson and Yamashita do not teach that the polystyrene layer in the panel disclosed by Benson is in a foam state. However, Rook discloses the use of polymeric foam as an adhesive (column 6, lines 24-36). Haase discloses that polystyrene can be foamed (column 2, lines 47-56). Therefore, it can be reasoned that foamed polystyrene would be a similar adhesive material to polystyrene as disclosed by Benson. Furthermore, Benson recognizes that polystyrene has desirable insulating properties (column 7, lines 34-40) and the use of foamed polystyrene as adhesive would enhance the insulating properties of the vacuum panel as a whole. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have placed adhesive polymeric foam on at least one surface of a vacuum panel and to have curved the panel through calendaring for the reasons discussed above.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al (5,107,649) in view of Yamashita et al (6,339,946) and the applicant's own admission (specification, page 1, paragraph 0005)

Benson et al in view of Yamashita et al teach the invention of claim 1 but does not expressly disclose that the vacuum panel comprises at least one metal sheet having a thickness not greater than 100 μm . Applicant's admission discloses that envelopes

made of barrier sheets of thickness generally not greater than 100 μm are known in the art (specification, page 1, paragraph 005. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to assemble and curve a vacuum panel as taught by Benson et al in view of Yamashita et al having a barrier sheet of less than 100 μm thickness. The motivation to do so would have been to create a high-performance insulation material occupying less volume that is therefore more valuable (Benson et al, column 12, lines 12-14).

Response to Arguments

7. Applicant's arguments filed 11/18/04 have been fully considered but they are not persuasive.

The applicant contends that one skilled in the art would expect the use of the rollers of Yamashita to crush panels such as those of Benson. However, Yamashita teaches that the load on the bending rolls can be adjusted as well as the spacing between the rolls (abstract). Therefore, it would be a matter of routine experimentation to adjust the spacing and load on the rolls to adapt Yamashita's bending method to accommodate a more delicate sheet such as that taught by Benson et al.

Applicant contends that the effects of calendaring on the finished panel of the present invention, having powders or polymeric foams as the filling material could not be foreseen. However, Benson teaches that a plurality of the vacuum sheets can be stacked or laminated together (column 8, lines 50-54), combined with foam insulation material or powder insulation (column 8, lines 53-61) and subsequently easily formed around curves or used in any shape desired (column 8, lines 67-68). Therefore, it is

clear that Benson et al did foresee and teaches that the effects of bending a panel having powder or polymeric foam as the filling material are negligible.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David T. Beck whose telephone number is 571-272-2942. The examiner can normally be reached on Monday - Friday, 8am - 5:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 517-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DTB
December 13, 2004

DTB



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER